APNIC25
Feb 2008 Taipei

Distribution of the last piece IPv4 address block in APNIC region

- Japan Network Information Center
- Izumi Okutani

JPNIC 社団法人 日本ネットワークインフォメーションセンター

Introduction

- This presentation discusses possible ways to distribute the last piece(s) of APNIC block
  - to address issues at the time of IPv4 address exhaustion
- They are listed as very rough ideas and feedbacks for improvements or suggestions of a new method is welcome

JPNIC

Relation with prop-0057

- Defining the distribution of the last piece of IANA block
  - prop-0057
- Defining the distribution of the last piece of APNIC block
  - This presentation

Background

- Although IPv6 is available as an alternative address space after IPv4 exhaustion, majority of the Internet is still based on IPv4

- As not all networks will switch to IPv6 immediately, ensuring access to IPv4 Internet remains important during the bridging period

JPNIC

Motivation of this discussion paper

- To consider ways to make an effective use of last piece(s) of APNIC's address block to address this issue

Steps of Consideration

- List and classify target/function that uses IPv4 address space
- Consider what happens if further IPv4 is available for each function/target
- Discuss if there is a particular target/function which should be given the priority to receive IPv4
  - Efforts must be made to adopt alternative methods where it can be applied

APNIC25

- Consider policy that will fit the needs of the target

NEXT STEP

Functions that use IP Address

TYPE	ENTITY	FUNCTION
N E w	ISP	Pool for subscribers
		Server
		NAT/Translater
	Endsite	Servers
		NAT/Translator
E X I S T	ISP	Pool for subscribers
		Server
		NAT/Translator
	Endsite	Servers
		NAT/Translator

Availability of Alternatives To Access IPv4 Internet

TYPE	ENTITY	FUNCTION	RFC1918	IPv6	Available IPv4
N E w	ISP	Pool for subscribers	○	○	×
		Server	×	×	×
		NAT/Translater	×	×	×
	Endsite	Servers	×	×	×
		NAT/Translator	×	×	×
E X I S T	ISP	Pool for subscribers	○	○	△
		Server	×	×	△
		NAT/Translator	×	×	△
	Endsite	Servers	×	×	△
		NAT/Translator	×	×	△

Observation I

- Pool for subscribers does not need assignment of global IPv4 address
  - RFC1918 address or IPv6 address can be used and access to IPv4 Internet can be provided via NAT/Translator

- Servers and NAT/Translators of end sites have no means to communicate with IPv4 Internet without global IPv4 on its own, but if this may be possible if upstream provider provides translation service of some kind

JPNIC

Observation II

- Those with existing IPv4 address have means to make global IPv4 address available from assigned space by making efficient use AMAP
  - It must be noted this has limits to a certain extent

- Functions with no alternative means whatsoever are Servers and NAT/Translators for new ISPs

Availability of Alternatives To Access IPv4 Internet

TYPE	ENTITY	FUNCTION	RFC1918	IPv6	Available IPv4
NEW	ISP	Pool for subscribers	○	○	×
		Server	×	×	×
		NAT/Translater	×	×	×
	Endsite	Servers	×	×	×
		NAT/Translator	×	×	×
EXIST	ISP	Pool for subscribers	○	○	△
		Server	×	×	△
		NAT/Translator	×	×	△
	Endsite	Servers	×	×	△
		NAT/Translator	×	×	△

Point of Discussions

- How far should we consider the needs for IPv4 for each function?

Moderate

Restrict

Allow all Servers and NAT/Translators

Allow all NAT/Translators

Allow Servers and NAT/Translators of new ISPs and endsites

Allow NAT/Translators of new ISPs and endsites

Allow NAT/Translators of new ISPs

Allow Servers and NAT/Translators of new ISPs

Brainstorm of possible options

- Allowing Servers would be too wide?
  - Almost all networks have servers
- Allowing all translators would be too wide?
  - Number of endsites would still be very large on the Internet
- Translators for ISPs?
  - New + Existing or only new?
  - Can new networks function by only receiving address space for translators or require some buffer?

Next Step

- Consider the criteria which will best meet the target depending on discussions on focusing the target

Questions

- Do you feel such consideration is useful?
- Are there suggestions of improvements or other alternatives?
- Is there a particular function/target which you feel should be given a priority?

Q&A